Coverage Insights

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Building Construction Classes

When underwriters evaluate a commercial building, they generally examine four specific characteristics—construction, occupancy, protection and exposure (COPE). It's not uncommon for insureds to overlook how the underlying construction of their buildings impacts their insurance. However, when it comes to property coverage, the construction class is critical and can affect rates and the overall insurability of the structure.

As a result, it's crucial to review the six different classifications of construction classes as outlined by the Insurance Services Office (ISO). In particular, insureds should understand what each class is, how to identify them and their advantages and disadvantages.

Frame ISO 1

Structures that fall under the frame classification have exterior walls made of wood or a light metal. However, the surface of those exterior walls can be any number of materials, including siding, brick veneer or metal. Roofs on a frame structure are wooden and often gabled. Furthermore, the height of frame buildings is limited to four stories.

Identification

When identifying frame structures, it's important to avoid focusing too much on the exterior surface of the building, as things like brick veneers or metal claddings can cause confusion. Instead, try finding an unfinished part of the building.

If the exterior wall has wooden studs, you know your building falls under the frame classification. Additionally, examining the roof can help in your determination. If the roof is gabled or pitched, and made of combustible materials (e.g., shingles), your building can only fall under the frame or joisted masonry classifications.

Businesses that typically fall under a frame classification can include small apartment buildings, motels and small offices. In more industrial settings, some warehouses may fall under the frame classification. It's also not uncommon for a manufacturing facility to put up a frame structure to create a low-cost storage solution.

Advantages

- Cost
- Ease of construction
- Ease of modification

Disadvantages

- Limited in terms of size
- High insurance rates
- May not be appropriate for some classes of businesses due to the high risk of fire and wind damage

Joisted Masonry ISO 2

Structures that fall under this classification have masonry exterior walls made of brick, concrete, stone, adobe or a similar material. The floors and roof deck of a joisted masonry building will be made of wood or other combustible material.

Roofs for joisted masonry buildings can be flat or gabled. The fire resistive rating of a joisted masonry building is at least one hour, and the height of these structures is limited to four stories.

Identification

Joisted masonry structures can be confused with both frame and masonry noncombustible buildings. When attempting to identify joisted masonry buildings, be mindful of exterior walls with a brick veneer. Buildings with these veneers will most

certainly be frame structures.

If you are able to see the exposed underside of the roof, the presence of a wood decking indicates the structure falls under the joisted masonry classification. It's important to note that, if masonry walls have floors and roof decks comprised of steel or noncombustible materials, the building will likely fall under the masonry noncombustible classification.

Businesses that often fall under the joisted masonry classification vary and can include small convenience stores, office buildings, apartments and warehouses.

Advantages

- Better fire protection than frame structures
- Structurally stable
- Potentially salvageable

Disadvantages

- Roofs and floors are prone to fire damage

Noncombustible ISO 3

Noncombustible structures will have a steel frame, metal walls and a metal roof. Smaller buildings may not have interior columns, instead relying on the strength of the steel frame. Larger structures will have interior steel supports.

Despite being classified as noncombustible, these buildings may still have slow-burning insulation. Noncombustible structures may have a gabled or flat roof, both of which would be made of noncombustible materials.

Identification

Smaller, noncombustible buildings may look similar to a metal-clad frame building from the exterior. However, the inside of noncombustible structures will consist of a steel skeleton. Exterior walls are typically metal, but can be made of other noncombustible materials as well.

Noncombustible buildings are common in the manufacturing and warehousing industry due to the increase risk of fires.

Advantages

- Easy to build
- Fire-resistant

Disadvantages

- Increased risk of damage following a blaze, since fire weakens steel considerably

Masonry Noncombustible ISO 4

Masonry noncombustible (MNC) structures typically include masonry exterior walls that are comprised of concrete block or tilt-up, load-bearing walls. Floors of MNC structures will often be made of concrete.

MNC roofs are typically flat or low pitch, usually made with a steel deck. The roof will often be built up with gravel or bitumen. A steel structure may be used, but it will not be protected.

Identification

MNC structures may be confused with joisted masonry structures, as both have exterior masonry walls. To properly make the distinction, identifying the floor and roof deck materials is critical.

If the structure has a gabled roof with combustible materials (e.g., shingles), the building will not fall under the MNC classification, and is instead considered joisted masonry. If the roof is flat, the structure of the roof might not be easy to determine. If the roof is concrete and is equipped with fire-proofed steel, it may be a modified fire resistive structure. If the structure has exterior masonry walls supported with unprotected steel beams, the building is likely an MNC structure. Common examples of businesses that utilize MNC structures include manufacturing businesses, warehouses, strip malls and offices.

Advantages

- More stable in a fire than a noncombustible structure (ISO 3)

Disadvantages

- Exposed steel on the roof and in the interior supports can weaken over time

Modified Fire Resistive ISO 5

Modified fire resistive (MFR) structures have protected steel. Fire resistive materials in MFR structures have a rating greater than one hour, but less than two hours. In MFR structures, exterior walls must be a minimum of 4 inches, and exposed steel beams may be sprayed with fire resistive materials.

Identification

An important component of identifying MFR structures is distinguishing them from MNC structures. A key difference between the two is that, in MFR structures, the steel exterior wall beams are protected by materials like concrete, plaster, clay, tile, brick and gypsum block.

MFR structures are common in high-rise office and habitational buildings. When it comes to positively identifying these structures—and many of the higher construction classes in general—you really need to see the construction plans.

Advantages

- Offer more protection than previous classes (ISO 1-4)
- Can be built taller than previous classes (ISO 1-4)

Disadvantages

- Expensive
- Less fire and wind protection than ISO 6 Reinforced Concrete Frames (Fire Resistive ISO 6)

Fire Resistive ISO 6

Fire resistive structures are similar to MFR structures. However, one of the key differences is that materials in fire resistive structures have a minimum fire rating two hours.

In fire resistive buildings, the walls must be one of the following:

- Solid masonry walls at least 4 inches thick
- Hollow masonry walls at least 12 inches thick
- Hollow masonry walls less than 12 inches thick, but no less than 8 inches thick with a listed fire-resistance rating of at least two hours

The floors and roof of fire resistive structures must be reinforced and at least 4 inches thick.

Identification

It may be difficult to visually tell the difference between MFR and fire resistive structures. However, it's unlikely you will see this type of construction class outside of high-rise buildings or parking garages due to its prohibitive cost.

Advantages

- Can be built taller than all other classes
- More fire-resistant than all other classes
- More wind resistant than all other classes

Disadvantages

- Most expensive class

Again, reviewing the building's construction plans is one of the best ways to identify a higher construction class.

Mixed Classes

In addition to ISO 1-6, mixed construction classes are also common. Some buildings are built using different construction methods, while others are added over time. When buildings are made of dissimilar materials--either by design or due to expansion—property-rating rules require each building component (e.g., walls, roofs and floors) and the building as a whole to be classified according to the material most susceptible to damage—the lower construction class. For example, if a building has a noncombustible roof, front walls made of 12-inch brick on block and exterior walls constructed of metal on steel beams, the entire building would be rated noncombustible (ISO 3).

However, there is an exception to this requirement known as the "two-thirds" rule. Essentially, if 66 and two-thirds of a percent of the individual building components' total area is of superior construction, that component is rated using the superior class. One example of this could be if a building has all the characteristics of an ISO 4 structure, but 25% of its exterior walls are made of combustible materials.

This is important, as a business owner may find themselves in a difficult situation where they can add onto a building and utilize a lower class. While it may be tempting to go with the less costly construction option, they may find it’s more expensive long term due to higher rates. They may even have difficulty finding an insurance carrier willing to cover their addition. Often, a local municipality will prevent a high-risk occupancy from moving to a lower construction class due to fire codes or other regulations. However, in rural locations, such authority may not exist.

Continued Safety

When it comes to building construction classes, businesses have to strike a balance between cost, and fire and wind resistance. Still, it’s important for business owners to take more than just the initial cost of a structure into account and understand how the construction class may affect their rates, occupancies and, most importantly, how resistant the building is to disasters.

Advantages

- Better fire protection than frame structures
- Structurally stable
- Potentially salvageable
